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Effects of supermassive black hole feedback on galactic hot atmospheres

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Current observations reveal that supermassive black holes (SMBHs) are nearly ubiquitous in massive galaxies in the local Universe. They are thought to be the central engines powering the feedback from active galactic nuclei (AGN), which is a standard ingredient in current cosmological simulations of galaxies and clusters of galaxies. In this talk I will present our recent results on the effects of SMBH-driven energetic feedback on galactic hot atmospheres, i.e. on the hot gas in and around galaxies. These are based on analyzing state-of-the-art cosmological simulations, such as IllustrisTNG (https://www.tng-project.org/) and others, in comparison to current X-ray observations. In particular, I will focus the discussion on two main concepts: i) X-ray signatures of SMBH feedback as quenching mechanism, and ii) effects of SMBH feedback on the spatial distribution of the circumgalactic gas.

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